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ANNUAL REPORT

OF

The Central Board of Health

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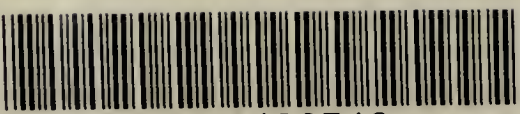
YEAR ENDED 31st DECEMBER, 1939

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THE PUBLIC HEALTH

Annual Report of the Central Board of Health to the Minister of Health (Hon. A. Lyell McEwin, M.L.C.)

Sir—We have the honour to submit the annual report for the year ended 31st December, 1939, on the work of the Central Board of Health of South Australia.

PART I.

GENERAL SURVEY OF ACTIVITIES.

Personnel of the Board.—The personnel of the Board during the year was :—

Chairman—

Albert Ray Southwood, M.D.

Members appointed by the Governor—

Edward Angas Johnson, M.D.

John Burton Cleland, M.D.

Member elected by Metropolitan Local Boards—

Harry Sumner Hatwell, J.P.

Member elected by Country Local Boards—

Frank Charles Lloyd, J.P.

Messrs. Hatwell and Lloyd were re-elected to membership of the Board at the bi-ennial election held in March, 1939.

Professor Cleland was honoured by being selected by the Royal Society of Tasmania to deliver the Clive Lord Memorial Lecture at Hobart in October, 1939. He also received the Clive Lord Memorial Medal.

Board Meetings.—Twenty-six meetings of the Board were held during the year. Many of the important items discussed at the meetings are reviewed in the appropriate portions of this report.

Staff of the Department.—This year again has been a very arduous one for the staff. The routine work of the department continues steadily to increase, and the demands on the staff are, at times, very severe. The Board greatly appreciates the manner in which the members of the staff have assiduously devoted themselves to their duties.

Scope of Work.—The Central Board of Health is responsible for the general supervision of all matters affecting, or likely to affect, the health of the people. The Board supervises the activities of local boards of health throughout the State, and guides and assists in the administrative problems which arise from time to time. The following list indicates some of the matters attended to by inspectors of the Central Board staff during the year under review :—Slaughterhouses, 115 ; butchers' shops, 93 ; bakehouses, 283 ; hotels, 97 ; business premises, 1,832 ; private premises, 1,844 ; offensive trades, 89 ; septic tanks inspected, 666 ; septic tank plans examined, 487 ; milk vendors' premises inspected, 211 ; inspections in regard to the sale of poisons, 873 ; food premises, 1,679 ; schools, halls, etc., 357 ; exhumations and reburials, 11 ; camps, reserves, etc., 80.

" Public Health Notes ".—The department's quarterly bulletin continues to serve a very useful function. It maintains contact between the Central and Local Boards of Health, and brings to the notice of health workers throughout the State any important development. Copies of the bulletin are distributed to all members and officers of local boards throughout the State, to medical practitioners, and to many other persons interested in public health work. The subjects dealt with in the bulletin have been of wide variety, and—treated in semi-popular fashion—they have been planned to arouse the interest of laymen concerned in public health work.

The Board is very grateful to those who have generously responded to requests for articles during the year :—Miss Nancy Atkinson, M.Sc. (of the Institute of Medical and Veterinary Science, Adelaide), Mr. A. G. Barrett, J.P. (Lord Mayor of Adelaide), Mr. J. P. Cartledge, LL.B. (Assistant Parliamentary Draftsman), Professor J. B. Cleland, M.D. (Professor of Pathology, University of Adelaide), Dr. J. H. L. Cumpston, C.M.G. (Director-General of Health, Commonwealth of Australia), Dr. S. L. Dawkins, O.B.E. (Commissioner for South Australia for the St. John Ambulance Brigade), Dr. Alan H. Finger (Medical Superintendent, Metropolitan Infectious Diseases Hospital, Northfield), Dr. R. A. Pellew (Medical Superintendent, Adelaide Children's Hospital), Professor A. E. Platt, M.D. (Professor of Bacteriology, University of Adelaide), The Honorable Sir George Ritchie, K.C.M.G. (at that time Minister of Health).

Legislation.—An amendment to the section of the Food and Drugs Act relating to the election of members of the Metropolitan County Board was passed by Parliament.

On 5th January, 1939, variations of the Poison Regulations, 1938, were made in respect of the following :—Case-hardening compounds containing cyanides ; the addition of benzedrine to Part I. of the Poisons List and to the third schedule, with an exemption for inhalation appliances ; the labelling of methylated spirits ; the extension of the use of strychnine for the destruction of rats, mice, sparrows, and other unprotected birds ; and an emergency stock of specified third schedule poisons for approved private hospitals.

On 12th January, 1939, variations of the Food and Drugs Regulations, 1932, were made in respect to butter and processed cheese.

National Health and Medical Research Council.—Two sessions of the Council were held during 1939, the first at Adelaide in May, and the second at Canberra in November. During the period of the Council's meeting in Adelaide the Institute of Medical and Veterinary Science was officially opened, and an inspiring address at that function was delivered by Dr. J. H. L. Cumpston, Chairman of the National Health and Medical Research Council. The institute, under the directorship of Dr. E. Weston Hurst, is taking a prominent place in the work of medical research in South Australia.

The investigation into rheumatic infection, under the grant made available to the Central Board of Health, has been completed. A review of the work is made in Part VIII. of this report. A renewal of the grant to the Central Board has been made for 1940, providing for further laboratory studies on certain features of rheumatic infection.

At its May session the Research Council approved a grant to provide for a systematic study of the health of children in a fairly fixed community in the Adelaide Hills. The work is being conducted without fee by a group of medical men in the Hills area, and the Council appointed a Directing Committee, consisting of Dr. F. S. Hone (Chairman), Sir Stanton Hicks and Dr. A. R. Southwood. The grant provides for the secretarial and incidental expenses of the survey.

Grants have been made for special work in the departments of anatomy and of physiology at the University of Adelaide, and these researches are proceeding. The investigation into the incidence of tuberculosis in young women has been concluded, and reference to the findings is made in Part VII. of this report.

The Physical Fitness Campaign has been initiated and is to be financed by the Commonwealth Government, on the recommendation of the National Health and Medical Research Council. In each State a special council has been set up. The Hon. S. W. Jeffries, Attorney-General and Minister of Education, is chairman of the South Australian Council ; the Central Board is represented by Dr. A. R. Southwood, and Messrs. H. S. Hatwell and F. C. Lloyd (members of the Central Board) are on the council as representatives of metropolitan and country municipal bodies. The Education Department, the University of Adelaide, and a number of other organizations, are represented on the council. The organizer is Mr. B. F. G. Apps, who is a graduate in Arts of Melbourne University, and who holds the Diploma of Education and the Diploma of Physical Education. Dr. F. W. Mitchell has been appointed Lecturer-in-Charge of Physical Education at the University of Adelaide, and a diploma course has been arranged.

The State Nutrition Council, also established on the recommendation of the National Health and Medical Research Council, consists of Sir Stanton Hicks (Chairman) and Drs. A. R. Southwood, W. Christie and E. Sandford Morgan. The function of the Committee is to disseminate information relating to nutrition problems. Pamphlets have been distributed through local boards of health, State schools, and the branches of the Mothers' and Babies' Health Association.

The Work of Local Boards.—The function of the Central Board is mainly a supervisory one ; conducting the detailed health work throughout the State is the duty of the various local boards. Each local board has wide powers, enabling it to deal effectively with most health problems arising from time to time in its area. Even now it appears that some local boards are not fully alive to their powers and responsibilities, although in most areas a greater interest in health work is becoming manifest. Only by the meticulous attention to details, sometimes apparently petty details, can a satisfactory state of community health be promoted and maintained. The privileges and duties of local boards are clear, and the members must not flinch from undertaking the responsibilities. The ways for achieving sound national health are well enough known, but effort and money must be used to get the best results.

PART II.

THE CONFERENCE OF OFFICERS OF HEALTH.

A new development of the Central Board's work was the holding of a week-end conference for officers of health. This took place on 20th and 21st May, and it proved a very useful and popular function. There was an average attendance of about 50 at the meetings. The presence of a large number of medical men from country districts was especially gratifying.

The conference took the form of a series of discussions and demonstrations on various public health matters. It was extremely valuable to medical practitioners engaged in public health work. The discussions of the conference were held in the new building of the Institute of Medical and Veterinary Science, Frome Road, Adelaide. The large and comfortable lecture theatre is especially suitable for conference purposes, and the Central Board greatly appreciates the kindness of the council of the institute in making the building available.

The conference opened a busy week of medical events in Adelaide. It was followed by the Annual Medical Post-Graduate Week, and by the sixth session of the National Health and Medical Research Council. This was the first occasion of the Research Council holding one of its meetings in Adelaide. The official opening of the institute of Medical and Veterinary Science was also held in the same week.

Sewage Works Demonstration.—The first event of the Conference was a demonstration given at the Sewage Treatment Works, Port Adelaide, on Saturday morning, 20th May. This was arranged through the courtesy of the Engineer-in-Chief (Mr. H. T. M. Angwin, B.E., M. Inst. C.E., M.I.E., Aust.), and was conducted by the Assistant Engineer for Sewerage (Mr. H. J. N. Hodgson, M.C.E.), and his assistants. The Port Adelaide works are the most up-to-date in Australia, and the clear explanation of the arrangements gave members an insight into modern treatment methods.

Official Opening of the Conference.—On the Saturday afternoon the formal opening of the Conference took place at the Institute of Medical and Veterinary Science. The encouraging address by the Honourable the Minister of Health (Sir George Ritchie, K.C.M.G.) dealt very clearly with the objects of the Conference. The Minister expressed his keen appreciation of the work of officers of health throughout the State. He commented on the general and increasing interest in public health work. "In all directions medical knowledge has been rapidly extended, and now headway is being made in the application of this knowledge to the problems of national health. The holding of this Conference is, in itself, evidence of the keenness of those participating in it. It was a wise step on the part of the Central Board to arrange the Conference, for I am convinced that the meetings will be of great benefit to the whole community." The Minister also referred to the important place being filled by the newly-established Institute of Medical and Veterinary Science.

Scarlet Fever.—Dr. Frank Beare (Walkerville) spoke on "The Control of Scarlet Fever." Dr. Beare explained that many of the old ideas regarding scarlet fever were now in the melting pot. He described the classical case as a febrile illness, characterized by sore throat and a red rash which is followed by peeling of the skin. He discussed the researches establishing the haemolytic streptococcus as the cause. In many instances streptococcal infection of the throat was not accompanied by a rash on the skin, yet even then the illness was highly infectious. The occurrence of these cases without the rash made effective control a difficult matter. After explaining the measures now adopted in the attempt to control the spread of scarlet fever, Dr. Beare said it had been doubted whether, in view of the mild character of the disease in recent years, it was really worth controlling. He felt that the present restrictive measures were justified, for the risk of serious complications of the illness made it a grave danger.

Dr. Alan H. Finger (Medical Superintendent of the Metropolitan Infectious Diseases Hospital) stressed the point that the streptococcal infections of the throat should be considered infectious in character, whether a rash occurred or not. Sufferers from acute sore throat should be kept apart from other people. It was a difficulty in some cases of scarlet fever to decide when the convalescent patient really became free from infection.

Rural Health.—The paper on "Health Work in Country Centres" by Dr. C. T. Piper (Port Lincoln) was followed with keen interest. Dr. Piper emphasized the great importance of the work of local boards, and urged its vigorous promotion. Dr. C. C. Jungfer (Lobethal) opened the discussion, and urged officers of health to maintain a wide outlook in their important work. He stressed the need for local boards to show greater enthusiasm in the work. Each district should take pride in its health arrangements. Dr. E. J. Swann (Jamestown) stressed the importance of education as a factor in public health progress. Folk schools conducted in some country centres did good work. Dr. Piper's paper has since been published in full in the "Medical Journal of Australia," and it has aroused considerable interest.

Food Supervision.—At the Sunday morning session the Chairman was Professor J. B. Cleland. Dr. H. K. Fry (Officer of Health to the Metropolitan County Board) presented a paper on "The Supervision of Food and Food Premises." Various samples of food which had been condemned by inspectors of the Metropolitan County Board were shown by Dr. Fry, with the assistance of Mr. S. A. Gale (Secretary, Metropolitan County Board). Mr. C. E. Chapman (Director of Chemistry) discussed "Methods of Chemical Investigation of Foods," and gave a demonstration of the Methylene Blue Reductase Test for Milk.

Occasional Papers.—Special papers were contributed by Dr. J. M. Dwyer (Officer of Health for Hindmarsh) and Dr. H. H. E. Russell (Officer of Health for Unley). Dr. Dwyer spoke on some of the underlying scientific principles of diphtheria immunization. Dr. Russell's paper was on "The Duties of an Officer of Health," and he outlined the routine work conducted by the Unley Local Board.

Laboratory Demonstration.—The final session of the Conference consisted of a demonstration arranged by Professor A. E. Platt (Deputy Director of the Institute of Medical and Veterinary Science) and Miss N. Atkinson (Assistant Bacteriologist), assisted by other members of the staff of the Institute. The chairman at this session was Professor E. Weston Hurst, Director of the Institute. A most interesting series of exhibits and explanatory talks was presented. It included demonstrations of the Mantoux test for tuberculosis, the testing of germicides, the typing of pneumococci and streptococci, blood culture methods, and the bacteriological examination of water and of milk.

Promoting Interest in Health Work.—The Conference—the first of its kind in the State—was a great success, and the Central Board is very grateful to the officers of health and others who contributed to the programme, and who attended the meetings. Similar conferences are regularly held in England and other countries, and are found to be a tremendous stimulus to health work. The wide range of present-day medical research calls for constant and attentive study if the new discoveries are to have their highest value in promoting community health. Such a Conference as that held under the aegis of the Central Board constitutes a strong educative force, and exercises a wide and beneficent influence.

PART III.
VITAL STATISTICS.

Vital statistics are the yard-stick of public health work. Suitably reviewed they provide the means of gauging the health problems in a community, and the degree of success being attained in attacking ill-health. The figures here reproduced have been made available through the courtesy of the Government Statist (Mr. A. W. Bowden, A.I.A.). Some of the tables have been extracted from Bulletin No. 8, issued by the Government Statist on 8th March, 1940. One outstanding feature was the increase of 264 total deaths and of 14 infant deaths in January, 1939—the month of excessive heat—over the figures for January, 1938.

Population of the State.—The population of the State on 30th September, 1939, was 597,112. On 30th September, 1938, the population was 593,259.

Births and Deaths.—Table I. shows the number of births and deaths, and the rate per 1,000 of mean population. The increase in the death-rate is to be noted ; the succeeding years are likely to show still further increases in this figure. The table also shows the number of infantile deaths (under the age of one year), and the infantile death-rate per 1,000 births.

TABLE I.
Births and Deaths in South Australia.

Period.	Births.		Deaths.			
	No.	Rate.	Total.		Infants.	
			No.	Rate.	No.	Rate.
Mean—						
1920-24	11,857	23·43	4,901	9·68	693	58·45
1925-29	11,301	20·16	5,034	8·98	526	46·54
1930-34	8,989	15·54	5,001	8·65	342	38·05
1935-39	9,039	15·32	5,430	9·20	297	32·86
Year—						
1934.....	8,459	14·50	5,403	9·26	301	35·58
1935.....	8,270	14·14	5,163	8·83	289	34·95
1936.....	8,911	15·17	5,464	9·30	277	31·09
1937.....	8,985	15·25	5,247	8·91	297	33·05
1938.....	9,410	15·88	5,539	9·35	287	30·50
1939.....	9,618	16·14	5,739	9·63	335	34·83

Infantile Deaths.—There was an increase of 48 in the number of deaths of infants under one year of age, the numbers being 335 (287) and the infantile death rate 34·83 (30·50). The figures in parentheses are are for the year 1938. The infantile death rate of 30·50 in 1938 was the lowest ever recorded for any country in the world, and even the higher rate of 34·83 for 1939 is—according to Mr. Bowden—the lowest, except for New Zealand. The rate in this State is only about one-half the rate of 20 years ago, and one-third of the rate in the years about 1900.

Of infants under one week the deaths were 165 (155), one week and under one month, 26 (44), one to five months 95 (55), six to 11 months 49 (33).

The chief causes of infantile deaths were :—Premature birth, 99 (84) ; congenital malformations, 36 (34) ; injury at birth, 22 (30) ; congenital debility, 19 (18) ; other diseases of infancy, 28 (27) ; diarrhoea and enteritis, 31 (18) ; pneumonia, 30 (37) ; whooping cough, 12 (1) ; excessive heat, 9 (—).

During 1939 there were 263 (285) still-births reported. Every case of still-birth is required to be notified to the Registrar of Births. Medical men, in reporting cases, are asked to state the probable cause as accurately as possible.

Causes of Death.—The principal causes of death in the general population are shown in Table II. The rates shown are those per 10,000 of mean population.

TABLE II.
The Main Causes of Death in South Australia in Recent Years.

Disease.	Persons.			Rates.		
	1937.	1938.	1939.	1937.	1938.	1939.
Diseases of the heart	1,041	1,199	1,316	17·67	20·24	21·96
Cancer and other malignant tumours	725	769	705	12·31	12·98	11·83
Tuberculosis (all forms)	256	218	225	4·35	3·68	3·78
Cerebral haemorrhage, softening, etc.	492	568	553	8·35	9·59	9·28
Pneumonia, Lobar-, Broncho-, etc.	275	327	273	4·67	5·52	4·58
Bronchitis (all forms)	57	74	64	0·97	1·25	1·07
Other diseases of respiratory system	122	121	137	2·07	2·04	2·30
Nephritis—Acute and chronic	276	259	259	4·69	4·37	4·35
Diabetes mellitus	116	140	144	1·97	2·36	2·42
Puerperal causes	46	44	38	0·78	0·74	0·64
Congenital debility, malformations, etc.	223	208	216	3·79	3·51	3·62
Senility	285	289	294	4·84	4·88	4·93
Suicides.....	56	72	65	0·95	1·22	1·09
Violent deaths (except suicides)	318	295	368	5·40	4·98	6·17
Diarrhoea and enteritis	48	37	54	0·81	0·62	0·91
Whooping cough	5	1	16	0·08	0·02	0·27
Diphtheria and croup	27	26	30	0·46	0·44	0·50
Influenza	9	13	24	0·15	0·22	0·40
Typhoid fever	4	6	—	0·07	0·10	—
Appendicitis	52	39	36	0·88	0·66	0·60
Hernia, intestinal obstruction	61	47	57	1·03	0·79	0·96
Cirrhosis of liver	22	22	25	0·37	0·37	0·42
Tetanus.....	7	2	7	0·12	0·03	0·12
All other	724	763	840	12·29	12·88	14·09
Totals	5,247	5,539	5,739	89·07	93·49	96·29

The Effects of Excessive Heat.—The first fortnight in January was abnormally hot. On 12th January the official thermometer in Adelaide registered 117·7 deg. Fahrenheit, breaking all previous records. In some country centres 120 deg. and more were reached. Other high daily maxima in Adelaide were 106·6, 107·7, 112·8, 116·9, 114.

Many sufferers from heat stroke were treated in hospitals. Heat exhaustion, especially in sick people, young babies, and elderly folk—all groups who bear heat badly—was a common trouble.

The Government Statist has noted that the total deaths for January, 1939, were 658 (394), an increase of 264 on the figure for January, 1938. Excessive heat was given as the direct cause of 74 deaths, and was shown as a contributory cause in many other cases. During January, the deaths from heart disease were 126 (74), senility 41 (15), nephritis 35 (19), cerebral haemorrhage, etc., 59 (31), diarrhoea 6 (2), and alcoholism 4 (—). Infantile deaths numbered 35 (21), of which 9 (—) were definitely attributed to excessive heat.

Tuberculosis, Cancer, and Heart Diseases.—The Government Statist reports that, except for irregular movements since 1930, the rate per 10,000 of mean population for tuberculosis has been showing a heavy continuous fall, the rate being less than one-half that of 20 years ago. Cancer had been showing a fairly continuous rise, but, during the past few years, the rate has fluctuated, that for 1939 showing a substantial decrease on rates of the three previous years. The increase in recent years is not as serious as would appear from the crude death-rate figures, for most cancer deaths are of older persons, and these now constitute a much larger proportion of the population. Table III. shows the figures.

TABLE III.
Deaths from Tuberculosis (all forms), Cancer and Heart Diseases.

Period.	Tuberculosis.		Cancer.		Heart.	
	No.	Rate.	No.	Rate.	No.	Rate.
Mean—						
1920-24	382	7·55	476	9·41	541	10·69
1925-29	364	6·49	555	9·90	590	10·53
1930-34	297	5·14	653	11·29	806	13·94
1935-39	239	4·05	710	12·03	1,136	19·25
Year—						
1934.....	281	4·82	651	11·16	956	16·38
1935.....	260	4·44	610	10·43	1,029	17·59
1936.....	235	4·00	740	12·60	1,101	18·74
1937.....	256	4·35	725	12·31	1,041	17·67
1938.....	218	3·68	769	12·98	1,199	20·24
1939.....	225	3·78	705	11·83	1,316	21·96

Deaths from External Violence.—The automobile still constitutes a serious menace. The Government Statist’s figures for the past five years are shown in Table IV.

TABLE IV.
Deaths by Violence in South Australia.

	1935.	1936.	1937.	1938.	1939.
Suicide	59	69	56	72	65
Homicide	4	8	8	5	1
Accidental burns	9	14	18	15	16
Accidental mechanical suffocation	3	1	4	3	2
Accidental drowning	32	35	40	22	25
Accidental fall	47	50	62	80	53
Automobile accidents	69	76	105	99	99
Excessive heat	2	3	1	1	74
Other causes	76	78	80	75	98
Total deaths by violence.....	301	334	374	372	433

The Ageing Population.—A striking fact, to be observed in all civilized countries, is that the population is ageing—people are living longer, and a far greater proportion of people of older years now exists than ever existed before. This increased longevity is largely attributable to improved hygienic conditions. The ravages of infectious diseases are less severe ; the death rates from typhoid fever and diphtheria are hardly one-twentieth of those 30 years ago, and the tuberculosis death rate has been more than halved. The fact that heart diseases now take so prominent a place in causing death is a favourable feature, for it indicates a wearing-out, a natural termination of life. As Rene Sand has said, “ To die from accident, infectious disease, cancer, appendicitis, diabetes, gastric ulcer, or to die in childbirth is abnormal. To die from progressive weakening of the heart muscle, from the gradual sclerosis of the vessels is the normal death, even if the end is marked by an episode like apoplexy or broncho-pneumonia.”

Increasing mortality from heart disease, coming mostly as it does in old people, is a matter for congratulation rather than dismay. It means that life is not now being limited **by** the infections of childhood, but by the degenerative lesions—the wearing-out processes—of old age. It must be realized that any appreciable prolongation of the life-span is unlikely to continue, and in Australia and many other countries the death rate—falling so strikingly in modern times—has probably reached its lowest figures. The years to come will show a steady increase in the death rate, especially from the diseases of the aged. This increase in death rate can be materially affected by one circumstance only—and that an unlikely one—a rapid and continued rise in the birthrate.

PART IV.
SANITATION.

Sewage Treatment in Country Towns.—In this State there are about 17,000 bacteriolytic or septic tank installations. These tanks are under the direct supervision of the Central Board’s inspectors, and are generally found to be working satisfactorily.

In some country areas the inadequacy of the water supply limits the use of these septic tanks for excreta disposal. Where such difficulty exists the best available method is the pan system, with covering of deposits, and subsequent shallow burial of the pan contents.

In places where habitation is scattered, but where the water supply is adequate, the septic tank is useful. It is very important, however, that these tanks should be made of ample size to deal with the probable load. The efficiency of a septic tank depends largely on the length of time the sewage remains in it, and a small tank may easily be overtaxed. To put in a large tank at the outset is good economy.

It is surprising that none of the larger country towns in South Australia has yet provided itself with a modern system for sewage treatment, for in some other State treatment plants are in use. Schemes have been prepared by the Engineering and Water Supply Department for several of our country towns, but so far none of these plants has been built.

The Board of Management of the South Coast District Hospital at Victor Harbour has installed a plant specially designed for it by officers of the Engineering and Water Supply Department. The plant is suitable for an institution with 45 persons in residence. The estimated cost of such a plant is about £400. The plant consists of a sedimentation unit, and a biological filter, followed by a sand filter, the sludge being digested. The special features of the plant at the hospital are the provisions for straining the settled liquor and for giving it a definite aerobic bias before applying it to the biological filter, and the specially designed filter dosing appliance. For institutions in country towns, a plant of this type should be eminently suitable, and many hotels, boardinghouses, and hospitals will probably desire to be so equipped. The plant requires only a small amount of attention, and it gives an efficient and inoffensive disposal method.

Danger in the Use of Soakage Wells for Sewage Disposal.—In non-sewered areas in this State the common methods used for sewage disposal are the pan system, privy pits, and septic tanks. Whatever the method adopted great care is necessary to conduct the work in a sanitary manner, so that typhoid fever and other intestinal infections are not spread in the community.

The burial of the waste matter in the surface layers of soil is followed by a purification process, due to the ordinary bacteria of the soil. Where waste matter is so buried, the risks to health are negligible, provided that there is no nearby water supply likely to be polluted and that flies are prevented from access to the matter.

Grave danger may arise, however, from the direct disposal of untreated sewage into the deep layers of the soil. The natural purification by soil bacteria, efficient though it is in the surface layers of soil, is unsatisfactory if waste matter is deeply buried. There is risk, too, that waste matter allowed to reach the deep layers may enter sub-surface water channels and lead to their pollution with germs of disease. The use of soakage wells for the disposal of untreated sewage is especially risky, for the underground water supply may be dangerously polluted.

To prevent the contamination of wells which may be used to supply drinking water, there are health laws designed to assist local boards to deal with the problem. Section 83 (*d*) of the Health Act, 1935, makes it an offence to allow "any over-flow, soakage or leakage from any water closet, privy or cesspool." This portion of the section does not apply to "overflow or soakage from a bacteriolytic tank unless the overflow or soakage is offensive." It has come to the notice of the Central Board that, in spite of this legislation, there are, in various parts of the State, soakage wells still receiving untreated sewage. Although many such wells may appear to work satisfactorily, there is an ever-present risk to health, especially if it is the practice in the area to rely on well water for drinking or household purposes.

In a circular recently issued by the Central Board, local boards of health were reminded that the use of soakage wells for the disposal of untreated sewage is a contravention of the Health Act, and that in all cases where practicable bacteriolytic or septic tanks should be used to treat the sewage before allowing it to enter the soil. The powers of councils with regard to the installation of bacteriolytic tanks are clearly set out in the Local Government Act, 1934, sections 528-531. In the larger country towns the desirability of introducing a complete sewerage system should be seriously studied. Meanwhile, it is especially emphasized by the Central Board that local boards throughout the State should be alive to the risks entailed in using soakage wells, and that under no circumstances should any extension of this dangerous practice be permitted.

The Danger of Caravans.—In previous reports the Central Board has drawn the attention of local boards to the need for supervising holiday "shacks." Many such "shacks" are flimsy structures, unprovided with proper sanitary arrangements. Unless adequate care is given to the sanitation of holiday places, the people will run grave risks to health.

Carelessness in sanitation matters is a risky business, and with the increasing use of caravans the possible dangers from a contaminated countryside are too serious to be overlooked. In some countries special regulations are in force, requiring that the strictest sanitary care shall be observed in and about caravans.

The simple pleasures of the open-air life are capable of giving great benefit to health, but neglect to carry out the ordinary principles of environmental sanitation may convert a possible source of benefit to a grave health menace. Appropriate articles in "Public Health Notes" have pointed out the dangers of sanitary neglect, and have indicated the methods of safe camping. Local boards must take all steps to have the sanitary provisions of its Health Act fully observed. The question of special legislation on some of the problems has been reviewed in many countries, and will be further considered by health authorities in this State.

Better Housing.—In a special article, published in "Public Health Notes" in October, 1939, the chairman of the Building Act Inquiry Committee (Mr. J. P. Cartledge, LL.B.) has explained the main features of the useful work being done by that body. The Committee is now conducting a survey of sub-standard dwelling-houses to ascertain how many such premises are structurally unfit for habitation. On the facts ascertained by the inspectors working under its direction, the Committee will give consideration to the problems of whether clearance and rehousing schemes are necessary in some areas and the manner in which such schemes should be carried into effect.

Much time and care have been expended in the organization of the survey. Conditions in the City of Adelaide are first being studied, but the work will later be extended to other localities where it appears that sub-standard housing conditions apply to any appreciable extent.

PART V. FOOD AND DRUGS.

The Advisory Committee under the Food and Drugs Act, 1908.—On the expiration of their term of appointment, the members were, under the provisions of the Act, re-appointed by the Governor on the 9th November. The Committee consists of Dr. A. R. Southwood, Chairman (Chairman, Central Board of Health), Professor A. Killen Macbeth (Professor of Chemistry at the University of Adelaide), Mr. C. E. Chapman (Government Analyst), Dr. H. Kenneth Fry (Officer of Health for Adelaide), and Messrs. W. M. Fowler, E. F. Lipsham, and F. M. Standish (persons conversant with trade requirements).

The Committee held four meetings during the year. The following subjects were dealt with :—Proposed amendment to the Food and Drugs Regulations relating to the milk supply, milk bars, saccharin in chocolate for diabetic persons, use of acid phosphate and cream of tartar in self-raising flour, malted milk, permitted colouring matters for foodstuffs, maize oil, antiseptics, protection of food from flies and dust, inspection of rabbits, egg pulp, wine, preservatives in minced meat, bromural, metaldehyde, registration of bakehouses and the conditions of manufacture and distribution of bread, and the manner of declaration on packages of food of the presence of preservatives.

Advisory Committee on Water Supplies Examination.—The Committee consists of Mr. H. T. M. Angwin, Chairman (Engineer-in-Chief), Mr. C. G. F. Johnson (Engineer for Water Supply), Professors J. B. Cleland (Pathologist), A. E. Platt (Bacteriologist), T. Harvey Johnston (Zoologist), Drs. A. R. Southwood, E. Angas Johnson, and H. K. Fry, and Mr. R. G. Wilton, Secretary. Under the direction of the Committee regular bacteriological and zoological examination of water samples from all metropolitan reservoirs are made, and this work is proving of the greatest value in assuring the safety and wholesomeness of the water supply.

Bakehouses.—In a circular issued to local boards in May, 1939, the Central Board stressed the importance of the careful supervision of bakehouses, and of the sale and delivery of bread. In accordance with the provisions of the Food and Drugs Act, 1908, it is the duty of local boards of health to supervise all premises where foodstuffs are manufactured, handled, or stored. The local boards are designated the “Local Authorities” under the Act, and the legislation gives wide powers to local authorities to ensure the hygienic manufacture and handling of all foodstuffs. In the metropolitan area the Metropolitan County Board is the “Local Authority” under the Act.

Measures for assuring the purity of the public bread supply are laid down in the Bread Act, 1936, the Food and Drugs Act, 1908-1935, and the Health Act, 1935. The Bread Act is designed to ensure that only bread of correct weight and wholesome constituents shall be sold. The Food and Drugs Act deals with all matters affecting the wholesomeness of foodstuffs. The portions of the Health Act bearing on this matter are especially those dealing with insanitary conditions and with the control of infectious diseases. Regulation 10 of the 1915 regulations under the Food and Drugs Act prescribes conditions for the protection of food from contamination. Regulations dealing with bakehouses are contained in section X. of the regulations under the Health Act, 1898.

The legislation cited empowers inspectors appointed by local authorities to enter and search bakeries and other food premises. There is also provision under the Food and Drugs Acts for the seizure and destruction of unwholesome food. Under Part VI. of the Health Act, 1935, and especially section 58, wide powers are vested in local authorities for dealing with any insanitary condition whatsoever.

Analysis of Food Samples.—In the metropolitan area, for the year ending 30th November, 1939, the Metropolitan County Board submitted 1,998 samples of milk for analysis, and 29 of these failed to conform to standard. Other types of foods were also officially tested, and 42 out of 77 samples were found defective. The Metropolitan County Board undertook prosecutions for various offences against the Food and Drugs laws; 71 convictions were obtained, with fines totalling £311 10s.

For other areas 129 samples of milk and butter were submitted for analysis, and 11 of the samples failed to conform to standard; in eight cases legal proceedings were taken.

When “official” samples are taken, and found defective, it is usual for the local authority to take legal proceedings. The taking of “trial” samples provides a means of gaining information on a wide variety of foodstuffs, and in cases of defect the vendors are warned. When further action appears warranted “official” sampling is the next step.

During the year 730 “trial” samples, covering a large range of foods and drugs, were submitted for examination by the Metropolitan County Board. The main items were :—Bread, 64 samples (20 found not to conform to standard); butter, 69 (5); self-raising flour, 17 (3); icecream, 18 (6); iodine tincture, 21 (16); jam, 23 (6); mince meat, 121 (77); olive oil, 12 (2); sausage, 22 (5); tartaric acid, 20 (8). In cases where the prescribed standard was not conformed to the vendors were warned.

Testing of Spirits.—The special inspector, the nature of whose appointment was described in our 1937 report, continued his duties. During the year the inspector examined 7,265 spirits, wines and brandies at various hotels throughout the State and submitted seven samples of spirits for analyses. Legal proceedings were taken in respect of four samples; in three instances fines were inflicted, and in one case a conviction was recorded without penalty, on payment of costs.

Examination of Milk for Tubercle Bacilli.—From time to time the Central Board arranges for the examination of samples of milk for the presence of tubercle bacilli. The examinations are made by guinea-pig inoculation at the Institute of Medical and Veterinary Science. During the year 59 reports of tests were received, and only one specimen gave a positive result; this was a sample of fresh milk from one cow only. The animal was subsequently examined by a veterinary surgeon, and was found to present no clinical evidence of disease.

Eggs in Cold Stores.—According to returns submitted by various cold stores regarding eggs placed in cold stores, 495,587 doz. passed through such stores during the 1938-39 season. The provisions regarding the lodging of declarations concerning eggs for ships’ stores or interstate trade to exempt the branding of the eggs with the words “chilled” or “preserved” are working generally satisfactorily.

Antiseptics.—The Central Board noted the increasing popularity of antiseptics consisting of essential oils, sometimes with an halogen derivative of xylenol, in alcohol, soap and water base, and also that some of these antiseptic preparations bore conspicuously on the label the word “Non-poisonous.” Although the Board recognized that many such preparations did not come within the existing provisions of the Poison Regulations, it decided that labelling them as non-poisonous was not in the public interest and should be discontinued. The Board recommended that antiseptic preparations of the type described bear on the label of the container a clear statement that the substance should not be taken internally. The various manufacturers were communicated with accordingly.

Labelling of Foodstuffs.—Inspections of country stores showed that frequent breaches of the regulations under the Food and Drugs Act in regard to the labelling of honey, vinegar and butter occur. With regard to the exemption from the prohibition of the use of the word “squash” or “crush” as regards “aerated lemon squash,” inspections in some instances in country areas showed that local manufacturers were still using incorrect labels. Appropriate action was taken to bring the requirements of the regulations in regard to labelling under the notice of the persons and local authorities concerned.

Crayfish in Fertilizer Bags.—The Chief Inspector of Fisheries and Game reported that one of his inspectors had been advised that it was a common practice for certain fishermen to pack crayfish in bags previously used for marketing fertilizers. The Food and Drugs Regulations, 1915, prohibit this practice, and the local boards of health for the districts concerned were instructed to see that the practice was stopped. They all reported that necessary action had been taken.

Dangerous Drugs.—The Board continues actively to police the legislation relating to narcotic drugs, which has now been in force since 30th September, 1937. This work is proceeding satisfactorily.

During the past year the Board has issued authorities to various persons under the provisions of the Dangerous Drugs Act and Regulations, authorizing them to be in possession of drugs. These authorities cover a wide range of persons, made up as follows ;

- (1) Four under regulation 9 to persons for scientific purposes.
- (2) Nine under regulation 10 (1) to pharmaceutical chemists engaged in hospital dispensaries.
- (3) Six under regulation 10 (4) to the medical superintendents of various hospitals, permitting the storage of drugs in the wards.
- (4) One hundred and sixteen under regulation 10 (5) to the matrons of private hospitals permitting the storage of an emergency stock of drugs at the hospitals.
- (5) Fourteen under regulation 11 to nurses in outback districts.
- (6) Nine certificates were issued by police officers in various country centres to farmers and stock-owners authorizing them to purchase tincture of opium for the treatment of animals.

The Board had before it, on a number of occasions, reports that certain authorized persons were purchasing, using or prescribing drugs in quantities that appeared to be greatly in excess of those normally required. These persons were required to furnish explanations, and these were carefully considered by the Board. Where necessary, warnings were issued that the Board expected serious efforts to be made to reduce the quantity of drug used.

Two cases of the unauthorized possession of drugs were dealt with during the year. In one case successful legal proceedings were taken against the proprietor of a chemist's shop which was being carried on without a registered chemist, and a fine was imposed. In the other case, as there was no suggestion of illegal use or supply, the drugs were seized and destroyed by an inspector of the Board.

An instance of an attempt to obtain drugs with forged prescriptions was also dealt with. Information was received that a certain person was attempting to obtain drugs from chemists with what were suspected to be forged prescriptions. Inquiries were made by an inspector of the Board, with the result that legal proceedings were taken by the Police Department, the defendant being found guilty and sentenced to imprisonment.

The Poison Regulations.—The Board has carried on its policy of energetically administering these regulations, which have now been in force for 18 months. The preliminary administrative difficulties, always encountered with new legislation, have been successfully overcome during the year, and the operation of the regulations is now proceeding smoothly. The grace period of six months which manufacturers were given to conform to the labelling and bottling requirements expired on 1st January, 1939. It has been found, during the year, that apart from a few instances of old stock, the new requirements have been successfully complied with by the manufacturers.

An important amendment, already referred to, provides for private hospitals to be approved as institutions, for the purposes of the regulations, to enable such hospitals to hold emergency stocks of specified Third Schedule Poisons, that is, those usually obtainable only on medical prescription. Ninety-four hospitals were so approved by the Board.

As a result of inspections carried out by the Board's officers, it was found that some storekeepers were selling poisons which were not covered by their licences, after having been previously warned that they could not do so. In one instance legal proceedings were taken against a metropolitan storekeeper for having sold a Part I. Poison, not being licensed or authorized to do so ; a fine of £5 with costs was imposed. In another instance successful proceedings were taken against the proprietor of a chemist's shop, which was being carried on without a registered chemist, for having exposed various poisons for sale in the shop, not being licensed or authorized to do so.

PART VI.

THE PREVENTION AND CONTROL OF INFECTIOUS DISEASES.

The Incidence of Infectious Diseases.—Table V. shows the incidence of cases and number of deaths from infectious diseases throughout the State for the past three years.

TABLE V.
Infectious Diseases Return for the Years 1937-1939.

Infectious Diseases.	Cases Reported.			Deaths.		
	1937.	1938.	1939.	1937.	1938.	1939.
Anthrax	—	1	—	—	—	—
Cerebro-Spinal Meningitis	2	—	1	—	—	—
*Chickenpox	1,223	—	—	—	—	—
Diphtheria	774	772	643	27	26	30
Dysentery—Amoebic	4	4	—	1	2	1
Dysentery—Bacillary	19	3	5	2	—	1
Encephalitis Lethargica	4	—	2	5	1	1
Endemic Typhus Fever	6	7	4	—	—	—
Erysipelas.....	110	78	96	3	3	—
Favus	—	—	—	—	—	—
Influenza	143	42	246	10	17	24
Malaria	—	—	2	—	—	—
Measles	72	85	6,157	—	—	11
*Mumps	107	—	—	—	—	—
Paratyphoid fever	—	1	—	—	—	—
Poliomyelitis Anterior Acuta	85	284	4	2	20	3
Puerperal Fever	58	50	64	6	8	13
Pulmonary Tuberculosis	331	300	334	225	193	206
Scarlet Fever	214	510	525	2	2	1
Typhoid Fever.....	27	33	16	4	6	—
Undulant Fever.....	—	—	1	—	—	—
Whooping Cough.....	684	184	2,931	5	1	16

*Not notifiable, 25th November, 1937.

Diphtheria Immunization.—Sixteen local boards and three institutions carried out diphtheria immunization campaigns in 1939. Approximately 1,600 children received the injections. Anatoxin is available for free issue by the Central Board, and it is disappointing that so few local boards are actively undertaking immunization of children in their areas. The opportunity to encourage the use of a valuable life-saving measure is being sadly neglected. Each fortnight for the past three years the State has lost a child from diphtheria.

Infantile Paralysis.—The Government has continued to give much assistance to the work of rehabilitating the victims of the 1937-1938 epidemic. On 13th February, 1939, the Crippled Children's Home at Somerton, conducted by the Crippled Children's Association of South Australia, Incorporated, was opened to receive patients. A grant is made by the Government towards the management of the home. The amount of the grant is based on the daily average number of patients under 18 years of age suffering from crippling conditions, priority being given to victims of the recent epidemic. For the first year of the operation of the Home the Crippled Children's Association will receive the maximum grant of £2,000. Payments are also being made by the Government to the Adelaide Children's Hospital, at the rate of £3 per week for each in-patient suffering from infantile paralysis and 4s. per visit for each attendance of out-patient sufferers. A number of sufferers from infantile paralysis were transferred to the Metropolitan Infectious Diseases Hospital, owing to their developing other infectious diseases. In these cases payment is made to the Hospital Board at the rate of £4 4s. per week during the time the patients receive after-treatment.

An emergency "Keepalite" plant was installed at the Metropolitan Infectious Diseases Hospital in order to ensure that respirators and electrical equipment should not be put out of action as a result of a temporary failure of the mains supply. A grant of £200 towards the cost of the plant was made available by the Government.

Psittacosis ("Parrot Disease".)—The occurrence of three cases of this disease was brought to the notice of the Central Board during the year. The illness is a serious one, leading to a special type of pneumonia. *Psittacosis* in human beings may be contracted from any bird of the parrot tribe which has become infected with the virus. In parrots the disease is often mild, and may pass unnoticed. Some birds, recovered from the disease, may remain carriers of the infection.

Dr. E. Weston Hurst, Director of the Institute of Medical and Veterinary Science, has pointed out that birds reared in captivity are usually safe, provided that no birds from outside have been introduced into the cage. It is always risky to import into an aviary fresh birds of unknown origin, for *psittacosis* is known to occur among parrots over wide areas in the south-east of this State and in Victoria and Tasmania. From no area of Australia are the birds known definitely to be safe.

Epidemics of Measles and Whooping Cough.—The latter half of 1939 showed a steady increase in the number of cases of measles and whooping cough notified to local boards of health in the metropolitan area of Adelaide and in various country centres. These infectious diseases of childhood recur in epidemic form every two or three years, and, when an epidemic of either disease is about, those children who have not previously had the illness are especially liable to get it. When an epidemic of either disease has not occurred for several years, its outbreak—when it does come—is likely to be very widespread. The last big epidemic of whooping cough occurred in South Australia in 1935, when 3,616 cases were reported, and 25 children died. The year 1933 was a heavy one for measles ; 13,469 cases occurred and there were 13 deaths. After so many years without large epidemics, the extent of the recent epidemics was expected. In 1939 there were notified in South Australia 6,157 cases of measles (11 deaths), and 2,931 cases of whooping cough (16 deaths).

PART VII.
THE PREVENTION AND CONTROL OF TUBERCULOSIS.

Advisory Council for Tuberculosis Services.—To secure the better co-ordination of tuberculosis services the Government has appointed a special Advisory Council. The council consists of Drs. L. W. Jeffries (Director-General of Medical Services), W. Christie (Principal Medical Officer, Education Department), and A. R. Southwood. The function of the council is to advise the Government on any aspect of tuberculosis control, and especially regarding the work of the Chest Clinic and Frome Ward (associated with the Royal Adelaide Hospital), the Bedford Park Sanatorium and the Morris Hospital (Northfield).

Incidence of Pulmonary Tuberculosis.—During the year 1939 there were 334 cases of pulmonary tuberculosis reported and 202 deaths. Table VI. summarizes cases and deaths recorded since 1901.

TABLE VI.
Pulmonary Tuberculosis in South Australia.

Years.	Cases Reported.	Deaths.
Average for the period 1901-1905	341	300
Average for the period 1906-1910	427	331
Average for the period 1911-1915	476	317
Average for the period 1916-1920	534	344
Average for the period 1921-1925	513	332
Average for the period 1926-1930	461	306
Average for the period 1931-1935	363	252
1936.....	266	199
1937.....	331	225
1938.....	300	191
1939.....	334	206

Tuberculosis of the respiratory system accounts for the deaths of nearly 3,000 Australians each year. The distribution of such casualties between the several States practically follows the population figures ; New South Wales has 38 per cent. of the deaths from tuberculosis (and the population of New South Wales is about 39 per cent. of the population of the combined States) ; Victoria, 30 (28) ; Queensland, 12 (14) ; South Australia, 8 (9) ; Western Australia, 8 (7) ; Tasmania, 4 (3).

Tuberculosis Survey.—Financed by a grant from the National Health and Medical Research Council, an investigation into the incidence of tuberculosis in young women in Adelaide and suburbs was completed this year. In the sample-survey made, over 3,000 young women of the age-group 15-30 years were studied. The procedure adopted was to apply the Mantoux test to all the subjects of the inquiry, and to make a radiological examination of the positive reactors.

The main conclusions of the physician who did the work are as follow :—

1. In a case-finding survey amongst young women of the age group 15-30 years the Mantoux test was used as a screen to detect those who should have a radiological examination.
2. Special attention was paid to the investigation of certain groups such as nurses, dressmakers, milliners and shop assistants.
3. Of the 3,056 skin tests performed, 1,946 (65 per cent) were negative and 1,110 (35 per cent) were positive.
4. In addition, 216 women over 30 years of age were also tested, 53 (24 per cent) giving a negative and 163 (76 per cent) a positive skin reaction.
5. Of the total of 1,273 positive reactors, 868 were classified as showing no radiological evidence of pulmonary tuberculosis, past or present.
6. The X-ray examination of the 1,110 positive reactors revealed 61 cases of “ active or probably active ” pulmonary tuberculosis. All these young women were supposed to be in good health and were in regular employment.
7. It was found that early and unsuspected cases of pulmonary tuberculosis did occur among young women in various industries, and these were often found in association with the infecting case in these industries.

8. The investigation amongst nurses supported the view that negative reactors should not be allowed to nurse cases of pulmonary tuberculosis. In addition, the skin test should be repeated at frequent intervals of three months, till the reaction becomes positive. As soon as this has happened an X-ray film should be taken and repeated three or four times during the first year of positive reaction, and yearly for three or four years afterwards.

In the early months of 1938 experiments were performed with micro-radiography of the image on the fluorescent screen. The cost of the usual large film after developing was 5s., whereas that of the micro-photographs was about 4d. This method of micro-photography would be very suitable for use in large surveys. By it some definite cases of pulmonary tuberculosis would be detected at once and doubtful cases could be selected for photography on the ordinary sized film. Thus the expense of future surveys could be very materially reduced.

Tuberculin Testing of Cattle.—The tuberculin test provides a useful means of finding whether a beast has at any time been infected with tuberculosis. In this State tests are conducted by officers of the Stock and Brands Department. Recently, at the request of the local board of health for Berri, the department's officers tested 69 cows in the Berri district, and in no case was any evidence of infection detected.

The local board of health for Port Lincoln has also done good work in arranging for the testing of cows. Dr. Cyril Piper explained the procedure in his paper read at the Conference of officers of health in Adelaide in May last. In the first series of tests at Port Lincoln three cows were condemned. The present plan is to test all new cows before they go into the dairy herds, and to test all cows every second year. It was noted at Port Lincoln that the testing was followed by increased sales of milk by dairies in the area, evidence of greater confidence of the public in the purity of the milk.

The Cattle Compensation Act, 1939, to come into operation early in 1940, provides for the payment of compensation to the owners of cattle destroyed because of infection with certain specified diseases. Tuberculosis is one of the diseases cited; the others are contagious pleuro-pneumonia, actinomycosis, and Johne's disease. The new Act will greatly assist in building up and maintaining healthy dairy herds.

PART VIII.

RHEUMATIC INFECTION.

Scope of the Research.—At the first session of the National Health and Medical Research Council, held at Hobart in February, 1937, a resolution was adopted, in reference to rheumatic infection and heart disease, urging Commonwealth and State Health Departments to investigate the incidence of rheumatic infection and the possible causative factors.

In March, 1937, a Committee was appointed by the Central Board of Health to make preliminary inquiries into the prevalence of rheumatic infection in South Australia. This Committee submitted a report to the second session of the National Health and Medical Research Council, held at Canberra in June, 1937. In the report it was recommended that a part-time research officer be appointed to work under the direction of the Committee appointed by the Central Board of Health, the person appointed to—

- (1) Conduct a rheumatic survey :
- (2) Investigate home conditions of sufferers from rheumatic infection :
- (3) Investigate especially the incidence of rheumatic infection in northern areas of the State :
- (4) Investigate the incidence of rheumatic infection among aborigines in the State :
- (5) In co-operation with the Director of the Institute of Medical and Veterinary Science, investigate rheumatic disease from the serological point of view in town children and country children :
- (6) Endeavour to discover why country children are especially prone to the severe types of infection.

At its third session, in November, 1937, the National Health and Medical Research Council made a grant of £500 available to the Central Board of Health to assist the Rheumatic Research Committee in the investigation.

Arrangements for the Work.—The main portion of the research was conducted in 1938 and the early months of 1939. The work was done under the direction of the special Rheumatic Research Committee appointed by the Central Board. The personnel of the Committee was :—Dr. A. R. Southwood (Chairman) and Professor J. Burton Cleland, representing the Central Board; Professor E. Weston Hurst, Director of the Institute of Medical and Veterinary Science; Dr. W. Christie, Principal Medical Officer, Education Department; Drs. R. Thorold Grant and E. Britten Jones, representing the Adelaide Children's Hospital; and Drs. L. W. Jeffries and J. W. Rollison, representing the Adelaide Hospital. The Committee held frequent meetings, at which the progress of the research was reviewed, and new plans were formulated. The Central Board greatly appreciates the honorary work of members of the Committee. The secretary of the Central Board (Mr. S. C. Stenning) conducted the administrative arrangements, and he was assisted by the Board's office staff.

The research officer was Dr. C. B. Sangster, and his final report was adopted by the Central Board in October, 1939. The report is to be published in the *Medical Journal of Australia* early in 1940. Dr. Sangster made a detailed study of the records of the Royal Adelaide Hospital and the Adelaide Children's Hospital over the period 1928-1938. He visited most of the country districts in the course of his inquiries and planned and assisted in the experimental and laboratory studies.

Epidemiological Factors.—The problem of rheumatic infection affects South Australia no more seriously than it does Australia as a whole. The research has shown that the predisposing causes are essentially the same here as elsewhere ; poverty, damp living conditions, and overcrowding play strong parts. Agreement on the nature of the actual cause of juvenile rheumatism is yet to be reached. The streptococci are intimately concerned, yet some features of the illness are difficult to explain on the basis of streptococcal infection alone. Whether an associated virus is present is one of the many problems awaiting solution.

Lines of Attack.—The concluding portion of Dr. Sangster's report is a call to action :—

Some health authorities abroad have introduced compulsory notification of acute rheumatism to assist them in assessing the problem and in trying to cope with it. For several years this procedure has been in force in the Royal Borough of Kensington (London) and it has served at least to focus attention on the menace of rheumatic heart disease. There are inherent difficulties in assessing accurately the incidence of rheumatic infection in a community. Although typical rheumatic fever is a clear-cut clinical entity, the less acute forms of rheumatic infection are not. It often happens that scant respect is paid to the minor types of rheumatic infection. It cannot be stressed too strongly that these minor infections are as grave a danger as frank cases of rheumatic fever, for they may cause irreparable and disabling cardiac complications. With the types of illness often ill-defined and the actual cause still unknown, compulsory notification is necessarily limited in its value.

In the present state of knowledge the best method of dealing with cardiac cripples is to prevent them. The care of rheumatic patients in the acute phase of their illness and suitable management in convalescence are essential, and require ample and good institutional facilities. The establishment of rheumatic supervisory centres in many cities has proved of great value. The centre conducted at the Adelaide Children's Hospital, linked with the arrangement for convalescent treatment at Estcourt House (at the seaside and about eight miles from Adelaide), is an ideal plan, and although this local scheme is a small one it is doing excellent work.

The suitable occupational training of young adults with damaged hearts must not be overlooked. A child, whose physical state requires that he rest in an institution for perhaps a year or two, may find himself at the end of that period poorly fitted to take his former place in life. After a month or two of the acute phase of the illness has passed, the patient is usually able to undertake some form of study and perhaps a limited amount of manual work. Hospital schools and vocational training centres enable the conduct of some suitable and useful work during the long period of convalescence ; neglect of this need may leave the patient a misfit for life. Most cardiac cripples may be suitably trained to do useful work and perhaps make a livelihood if the opportunity for training is seized at the right time and in the proper manner.

There is still need for continued research into the prime causes of rheumatic infection. Further studies on the matter, following the lines of experimental and laboratory studies outlined in this report, may eventually lead to valuable additional knowledge. Continued attention to town planning, to sanitation and housing, to health education, to any means for enabling communities to live hygienically—such activity will achieve much. To try to cope more effectively with rheumatic infection—here lies a duty and opportunity for preventive medicine. If this report does something to gain more interest in the problem, and to point out ways for attacking it, the work it records will not have been futile.

PART IX.

CONCLUDING OBSERVATIONS.

1. South Australia is a healthy place to live in. In matters of health, however, complacency cannot be excused ; there must be continued striving for improvement.

2. The conference of officers of health, the first held in this State, proved to be a highly successful function. It has given a decided stimulus to health work throughout the State.

3. The excessively hot weather in January was, in part at least, responsible for an increase in the number of deaths for 1939. Infants and the aged were the chief victims.

4. The new laws relating to poisons and dangerous drugs have been found effective and valuable, and the administration of them proceeds satisfactorily.

5. Following the *poliomyelitis* epidemic of November, 1937-June, 1938, it was necessary to provide means for rehabilitating many of the sufferers. The Government liberally supported all branches of the work, and the various hospitals and voluntary organizations have done splendid service.

6. Diphtheria still causes too many deaths, and little improvement can be expected until greater use is made of artificial immunization. So far there has been only a small beginning in the work. To achieve any appreciable result for the community as a whole, it is necessary that about 10,000 children in the State should be immunized annually, and even then five or six years must elapse before the full value could be seen. Each local board is urged to make the work of immunization one of its routine duties.

7. Large epidemics of measles and whooping cough occurred in the latter half of the year. The last measles epidemic occurred in 1933, and whooping cough had given little trouble since 1935. As was to be expected after such long periods of quiet, the recent outbreaks have been widespread. Fortunately, the mortality rate has been low.

8. In the Government's re-organization of the State's tuberculosis services, the appointment of the Advisory Council is a step forward in better co-ordinating home supervision and institutional arrangements.

9. The Board appreciates the action of the National Health and Medical Research Council in making available a financial grant to promote research into rheumatic infection. A further small grant has been made available for continuing the laboratory investigations.

10. Sanitation is still the basis of good health work. Clean homes in clean surroundings are the first consideration. The disposal of sewage and refuse sometimes presents problems, especially in country areas. Wherever the installation of a sewerage system is practicable, local boards in the area should press vigorously for this highly desirable amenity.

11. Most local boards are applying themselves conscientiously to their duties. The former Minister of Health (the Hon. Sir George Ritchie, K.C.M.G., M.L.C.), in opening the conference of officers of health, praised the efforts being made by local boards and their staffs. The present Minister (the Hon. A. L. McEwin, M.L.C.) has also expressed appreciation of the work of local boards.

12. There are indications of awakening interest throughout the community in public health matters. Local boards are urged to take every opportunity for securing the co-operation of their ratepayers and the people generally in their efforts for achieving a still sounder state of the public health.

A. R. SOUTHWOOD, Chairman.	
E. ANGAS JOHNSON,	} Members.
J. B. CLELAND,	
H. S. HATWELL,	
F. C. LLOYD,	

S. C. Stenning, Secretary.
Adelaide, 26th March, 1940.